

The Clark County Volunteer Monitoring Program (hereafter referred to as simply 'the monitoring program') began in 2002 to involve citizens in monitoring the health of watersheds. The program is part of the outreach and education efforts of the Clean Water Program. Volunteer monitors are taught how to sample streams and lakes for chemical, biological, and physical indicators of watershed health. The high-quality data is utilized by county resource managers and other agencies. Following a nation-wide trend, the monitoring program has proven that volunteer-collected data is accurate, objective, and worthwhile. This newsletter highlights the program in 2005, our third full year of successful collaboration with Clark County volunteers.

## Monitoring Resource Center

The Clark County Monitoring Resource Center (MRC) provides water quality monitoring equipment for loan as well as a lending library. As a service of the Clean Water Program, volunteers and citizens can receive training on water quality data collection and check out monitoring equipment from the MRC.

Since 2003, over 50 different individuals, teachers, and organizations have utilized the MRC by checking out equipment to work on their own projects or for use on school field trips. A list of equipment available for loan is on our website at [www.clark.wa.gov/water-resources/monitoring/vol-resource-center.html](http://www.clark.wa.gov/water-resources/monitoring/vol-resource-center.html).

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## Summer BBQ a success!

The monitoring program was pleased to host an outdoor BBQ party for the volunteers in appreciation of their tremendous efforts collecting water quality data. To date, volunteers have invested OVER 450 HOURS monitoring the health of Clark County watersheds!

The event was a collaboration between the county and the Watershed Stewards, a program of WSU Extension funded by the county's Clean Water Program. Stewards attend a 10-week class covering various environmental topics and, in exchange, volunteer their time educating the community how to protect our water resources. Many of the monitoring program's volunteers are Watershed Stewards, so it was natural to hold a combined event in appreciation of all the volunteers.

The BBQ was held in the afternoon of August 20th at an amazing farm overlooking the Columbia River east of Washougal. Our hosts were Dr. J. Christina Brittain and L.W. "Bud" Quinn. They graciously opened up their home and property to us and we greatly appreciate it! In return, WSU Extension and Clark County provided live music, brought all the food, and did all the cooking while Christina and Bud relaxed and visited with the volunteers.



Ron Wierenga from Clark County Water Resources flips burgers at the summer BBQ

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# Current Stream Projects

In 2005, the county decided to move two of the volunteer stream sites to locations that better fit the site criteria for safety and public accessibility. The site on the Little Washougal River was closed due to inaccessibility during high flows in the winter and spring and Fifth Plain Creek was closed due to volunteer proximity to dangerous traffic. In addition, enough data had been collected at both sites to characterize current conditions. Data reports from both these sites are available at [www.clark.wa.gov/water-resources/monitoring/reportspublic.html](http://www.clark.wa.gov/water-resources/monitoring/reportspublic.html).

We appreciate the flexibility that the volunteers have shown in light of the program changes. Volunteers were given a chance at the beginning of the year to move to a new site or remain at their original site. Our hope is that volunteers monitor the site they are most interested in. The two new stream sites this year are Gibbons Creek in Washougal and Mill Creek on the WSU

campus. Existing stream sites include Gee Creek in Ridgefield, and Brezee Creek at La Center

Bottoms. Teams meet four times a year at the stream sites to collect chemical, physical, and biological water quality data. An additional stream project, highlighted in the TMDL article below, involves citizens collecting water quality once a month on Gibbons Creek as part of a TMDL.

Each quarterly stream monitoring has a different focus, keeping volunteers on their toes.

Here, Susan Tripp and George Pollock take measurements of the physical characteristics of Mill Creek



## TMDL: you've heard the acronym, but what does it mean?

On March 2nd, the monitoring program invited Gayle Killam from the River Network to give a presentation for volunteers and staff entitled, "Using Clean Water Act Tools in Watershed Restoration." The presentation gave the group context for understanding the Clean Water Act, and highlighted the importance of water quality data for the enforcement of the Clean Water

Act. The excellent presentation helped the group understand the very complex process of implementing a federal law at a local level.

Part of the process Gayle talked about was the TMDL, which stands for 'total maximum daily load'. TMDL is a technical term used by water scientists to indicate the amount of a given pollutant that a water body can receive each day without compromising water quality. The TMDL

process begins after a water body has been listed as having a pollution problem and requires some type of cleanup. Determining the current pollutant load is the first step in designing a cleanup plan, the ultimate goal of the TMDL process. Current data can then be compared with state and federal standards, and recommendations made for reducing the pollutant load. It is often

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*Monitoring Resource Center  
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Organizations which have utilized the MRC include The Lower Columbia River Estuary Partnership (Estuary Partnership), Vancouver-Clark Parks Americorps, Fish First, and the Environmental Information Cooperative.

The Estuary Partnership sponsors an annual water quality monitoring event in late September for students and volunteers to promote stewardship and obtain water quality information. This year, Over 800 students and volunteers participated in the event and nearly 90 sites were monitored in the Lower Columbia Basin. Originally a two-day event, it now spans two weeks in order to incorporate the participation of as many classes as possible. Many classes use this event to kick off the start of monthly water quality monitoring.

Since 2002, the Estuary Partnership has utilized MRC water quality meters to measure temperature, pH, and dissolved oxygen levels during this annual event. Data collected from these events can be viewed on their website at [www.lcrep.org/vol\\_monitoring.htm](http://www.lcrep.org/vol_monitoring.htm).

An Americorps team doing work for Vancouver-Clark Parks in the East Fork Lewis River watershed has been monitoring water quality on Manley Creek, a tributary of the East Fork. Utilizing equipment from the MRC, the team has collected monthly data on water temperature, pH, dissolved oxygen, flow, and turbidity on this county-owned property called Lower

## Vancouver Lake

Volunteers have completed two years of a water quality study of Vancouver Lake. This year we were fortunate to gain the support of the Vancouver Lake Sailing Club (VLSC). The VLSC allows access to the lake from their property and several members have taken volunteers out on the water to sample the lake. A big thanks to the VLSC for making the lake more accessible to the volunteers and helping those volunteers without boats to stay involved!

Sampling this year was similar to last year. Volunteers collected general water quality data every two weeks from May to October from the center of Vancouver

Lake. The purpose of the data collection was to determine general lake conditions. The volunteer-led effort represents the only ambient water quality data currently being collected from the lake. The data has already been utilized by the Vancouver Lake Partnership, a collaborative effort between agencies and citizens to create a long-term plan for the lake. Data results for 2004 have been summarized in a report available on our website at [www.clark.wa.gov/water-resources/monitoring/reportspublic.html](http://www.clark.wa.gov/water-resources/monitoring/reportspublic.html).



Volunteer monitors Tim Dean, Anne Jackson, and Betty Lavis sample at Vancouver Lake

Daybreak Park. This data will be available to park planners as they consider several options for the future management of the park. One is to create an educational site with trails, interpretive signs, and possibly an interpretive center. In the near future Vancouver-Clark Parks, which manages the site, is planning to meet with the Board of Commissioners with a renewed proposal to develop a master plan for the site.

Fish First is an organization with the goal of supporting healthy salmon and steelhead spawning populations in the Lewis River system and other regional

streams. Primarily interested in conditions for salmonids, Fish First has used MRC water quality meters to measure temperature and dissolved oxygen levels for in-stream projects in Cedar Creek.

The Environmental Information Cooperative (EIC) coordinates field programs for Clark County students. Their focus on leading students in the field to a local creek gives the students a hands-on, inspirational experience in scientific investigation. The EIC has borrowed wading boots, meters, and aquatic bug collection equipment for 17 school field trips this year.

# The Contribution of Groundwater

Imagine it's the height of summer. You wake every morning to blue skies, and the sun shines all day. You can't remember the last time it rained. Then, you drive by your favorite creek and it's flowing clear and cold. The water level is certainly lower than in winter, but it's still flowing. Where is the water coming from during the drought of summer? The answer is groundwater.

Groundwater is the water occupying the spaces (called pores) between rocks and soil particles underground and is the source of seepage into creeks at all times of the year including the driest months. Most of our streams and rivers would be completely dry in the summer were it not for groundwater. Throughout the rainy months, water percolates down through the soil by gravity and saturates certain zones. These saturated geologic zones are called aquifers and yield water in usable quantities to wells or springs. Many people think of an aquifer as an underground lake, but it is more accurately visualized as a giant underground sponge.

Depending on the geologic layers an aquifer can be confined to a certain area deep underground or just a few feet under the soil surface.

Groundwater moves slowly; for example, ten feet per day is fast for groundwater movement. Nevertheless, surface water and groundwater are linked, and contaminants can pass from one to the other.

Even if it takes years for surface water contamination to reach groundwater, the importance of controlling surface water pollution cannot be overstated. Seventy-five percent of cities across the country depend on groundwater for part or all of their drinking water supplies. All of Clark County's residents receive their drinking water from groundwater sources except for the City of Camas, which has two surface water diversions that augment wells. County residents who do not have private wells get their drinking water either from

their municipality or from Clark Public Utilities (CPU).

Generally speaking, agencies in Clark County don't have to dig very far to find a large enough volume of groundwater to supply county residents. For example, most of CPU's wells are located in the Salmon Creek watershed with an average well depth of 250 feet.

The City of Portland is fairly unique in that the primary drinking water source for most city residents comes from surface water in the Bull Run watershed. In years of extreme drought or during system maintenance, Portland utilizes groundwater from wells along the Columbia River.

## MORE INFORMATION...

Web site: [www.clark.wa.gov/water-resources](http://www.clark.wa.gov/water-resources) (click on "monitoring", then "volunteer monitoring" for our programs, or click on "reports & publications" for our documents)

Questions about our program, to request paper copies of any of our reports, or to volunteer, please contact:

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For an alternative format, contact the Clark County ADA Compliance Of  
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up to local jurisdictions and landowners to implement the cleanup plan.

The monitoring program is guiding the efforts of a bacteria TMDL in the Gibbons Creek watershed, which is partly in the City of Washougal, and partly in unincorporated Clark County. The water cleanup plan is in the first stage of the process - determining current pollutant load. Volunteers in the Washougal area have been collecting data for the Gibbons Creek water cleanup plan since April, 2004. Volunteers measure temperature and turbidity monthly at seven sites along Gibbons and Campen creeks.

They also collect water samples which are analyzed for bacteria levels at the wastewater treatment lab of the City of Washougal.

Together with previously-collected data, the volunteer data has given us valuable information about trends in bacteria and turbidity levels. This data will help us with the next stage of the water cleanup plan - determining the sources of the pollutants. A data summary for 2004 has been published and is available on our website at [www.clark.wa.gov/water-resources/monitoring/vol-resource-center.html](http://www.clark.wa.gov/water-resources/monitoring/vol-resource-center.html).

